Testing the developmental foundations of cinematic continuity

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Introduction

All TV and film, even those aimed at babies communicate visual narratives using an edited series of shots adhering to the rules of continuity [1]. We have previously shown that adults who are inexperienced movie viewers fail to comprehend some of these rules [2]. In this study we investigated the developmental origins of movie perception by examining whether 12 and 18-month-old infants' ability to follow a gaze cue to an in-view object [3,4] extends to the situation when the gaze cue occurs across an edited sequence, i.e. Gaze match cut [1,2].

Method

12-month-old infants (n=35), 18-month-old infants (n=26) and adults (n=23) were shown 8 film clips depicting a model looking at one of the two objects in single medium shot or in multiple shots (see Fig. 1). Direction of gaze cue was counterbalanced. Eye movements were recorded with a Tobii TX300. Data were included in the analysis if subjects fixated the model's face during gazing. Infant's first target look was categorized as a "correct look," when it aligned with the adult's target (+l), or an "incorrect look," when it aligned with the opposite target (-1). A look at neither target, received a score of 0.

Looking score (LS) =
mean (correct looks+incorrect looks+non-looks).

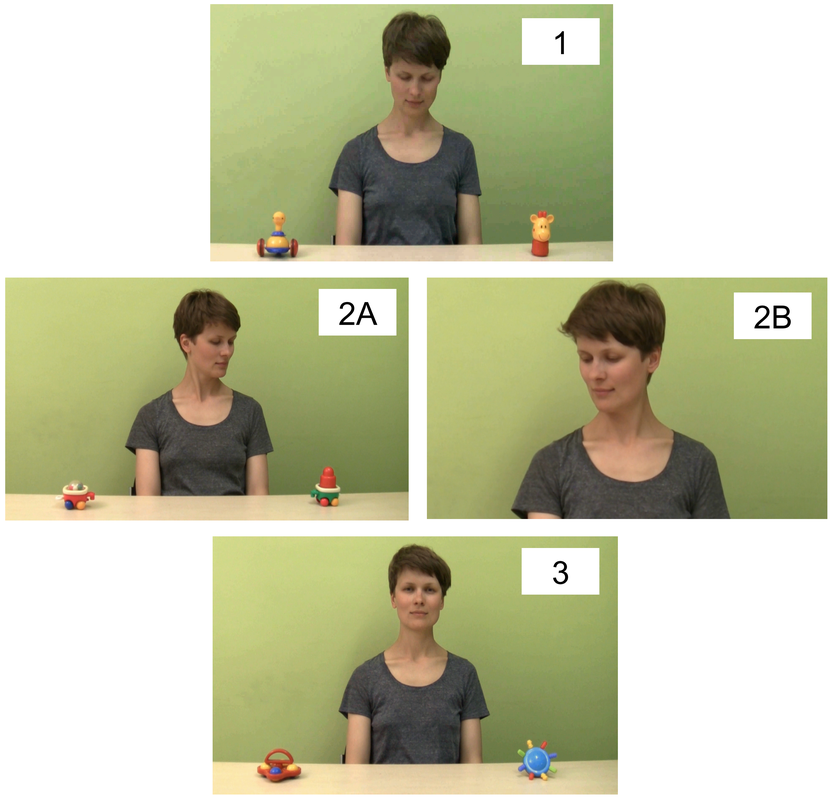


Fig. 1: Sample frames from the stimuli. Each video started with baseline phase (1) followed by gazing phase (2). In the single shot condition (SS) the agent looked at the object in the same shot as 1 (2A). In the multiple shot (MS) condition the agent looked at the object in a close-up shot (2B). Each video ended with a testing phase showing the whole scene again (3).

Conclusions

- Babies can follow gaze across a cut but not as well as adults.
- Whether this is due to less TV exposure or increased cognitive demands of edited sequences must be tested in future work.

Results

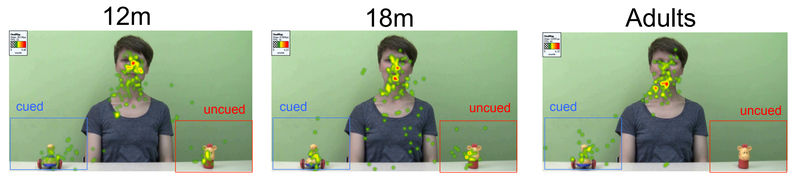
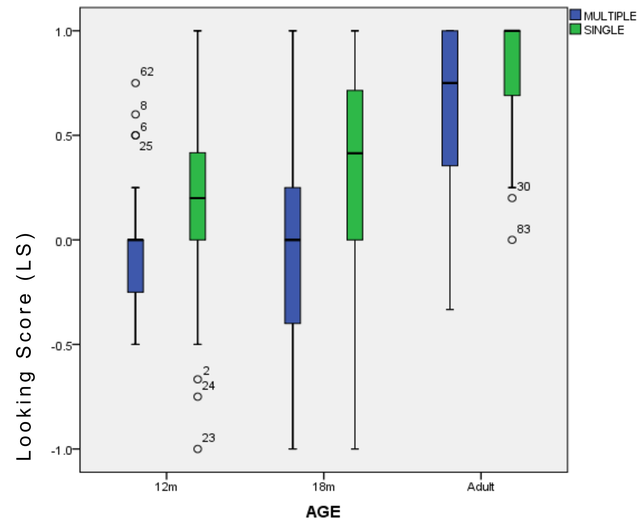


Fig. 2: Heat maps on testing shot for one of the multiple shot videos when the cued object was on the left

12m – LS is higher in SS M=.20, SD=.05 than in MS M= -.05, SD=.08, t(34)= -2.85, p=.007
18m – LS is higher in SS M=.35,SD=.45 than in MS M=-.05, SD=.08, t(25)=-2.73, p=.011
Adults – LS is not significantly different in SS M=.79, SD=.29 and in MS M=.64, SD=.08, t(22)=-1.70, p=.102



Edit: F(1,81)=17.289, p=.000 Age F(2,81)=34.778, p=.000 Edit*Age F(2,81)=1.300, p=.278

12m vs Adults p=.000 / 12m vs 18m p=1.000 / 18 vs Adults p=.000

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